

A New Species of the Genus *Hesperumia* PACKARD from Japan (Lepidoptera: Geometridae)

Rikio SATO

472-2, Makio, Niigata 950-21, Japan

Hesperumia babai sp. nov. (Figs. 1-4)

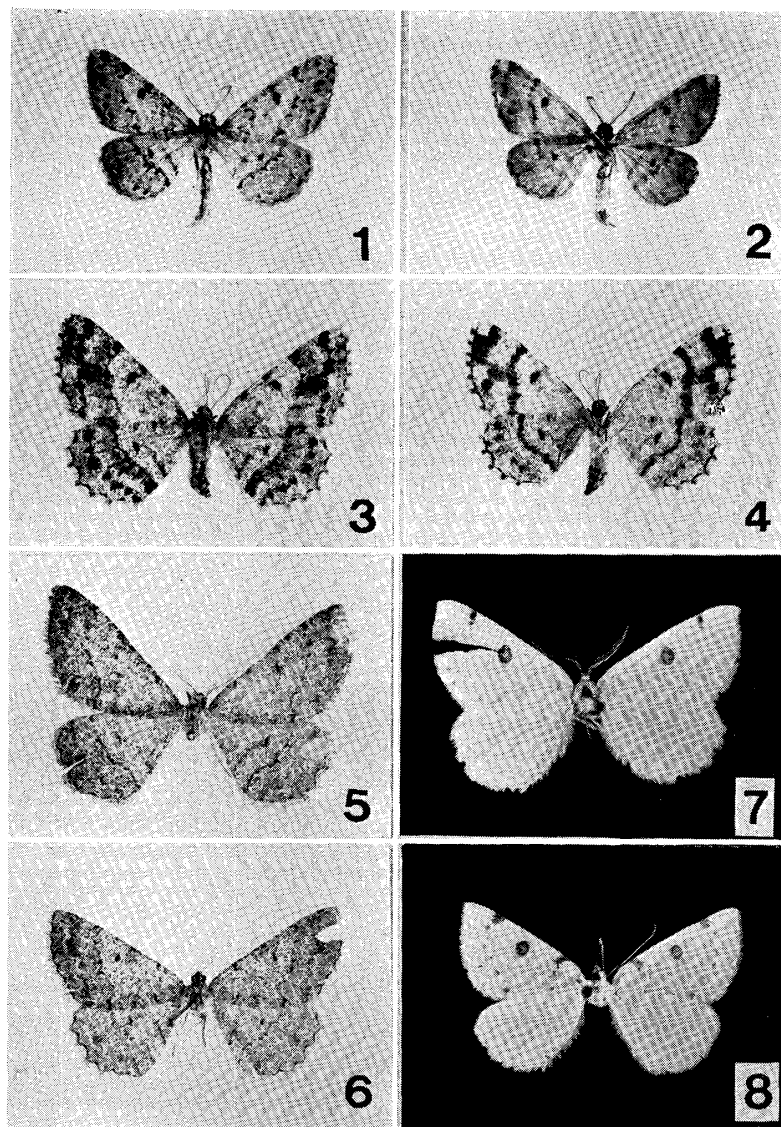
Length of forewing: ♂, 14-17 mm; ♀, 14-19 mm.

Male. Vertex greyish brown; front black; palpus concolorous with vertex; antenna with 38-42 segments, the longest pectinations about 2.5 times as long as their basal segments. Tegula, patagium and thoracic vestiture with mixture of grey and greyish brown scales; legs grey. Abdomen grey, sometimes with a pair of black spots mediodorsally on first 3 and 4 segments. Ground colour grey, evenly irrorated with blackish grey. Forewing: basal region slightly darker than the rest of wing; antemedial line ill-defined, black, out-curved anteriorly, then waved to inner margin; medial line arising as black spot near the middle of costa, then becoming more or less obsolescent; discal spot usually present, black, round or elliptical, relatively large; postmedial line black, usually well-defined, heavily marked on veins, weakly curved outward anteriorly, and curved inward between veins Cu_2 and $2A$; subterminal line fuscous, represented by spots between veins; terminal line black, crenulate. Hindwing: antemedial line wanting; medial line usually present, almost smooth; discal spot smaller than in forewing; postmedial line wavy, heavily marked at veins. Underside: all wings pale grey; maculation of upperside weakly represented; forewing with apex pale grey.

Female. Antenna simple. Different from male mainly in the following respects: upperside of wings more densely irrorated with black, with blackish band distad of and parallel with postmedial line; underside lighter in colour, with more clearly defined pattern.

Male genitalia (Figs. 9, 10). Uncus with lateral margin deeply concave at middle, apical portion almost rounded, apex narrowly trifurcate; gnathos well-sclerotized, with median plate shallow and broad; valva with a swelling at the base of costa, with tuft of long hairs from dorsal surface extending posteriad beyond uncus; sacculus with a short tapered process, having 5-6 stout spines between the process and the tuft of hair on costa; juxta slender rod-like dorsally and semicircular ventrally; aedeagus about equal in length to the combined length of tegumen and saccus, with two sclerotized processes; process of dorsal side shorter than that of ventral side, slightly curved and tapering to a blunt point, and process of ventral side tapering to a point, having many short teeth at about half of its length; vesica with a spine-like cornutus.

Female genitalia (Fig. 13). Sterigma with central area sclerotized, slender, narrowly rounded caudally; lateral area of lamella postvaginalis less heavily sclerotized than central area, longer, widened caudad; colliculum weakly sclerotized, shorter than



Figs. 1-8. *Hesperumia* spp. 1-4: *H. babai* sp. nov., Tainai, Niigata, Japan. (1) ♂, holotype; (2) ditto, underside; (3) ♀, paratype; (4) ditto, underside. 5-6: *H. latipennis* (HULST), Canada. (5) ♂; (6) ♀. 7-8: *H. sulphuraria* PACKARD, Canada. (7) ♂; (8) ♀.

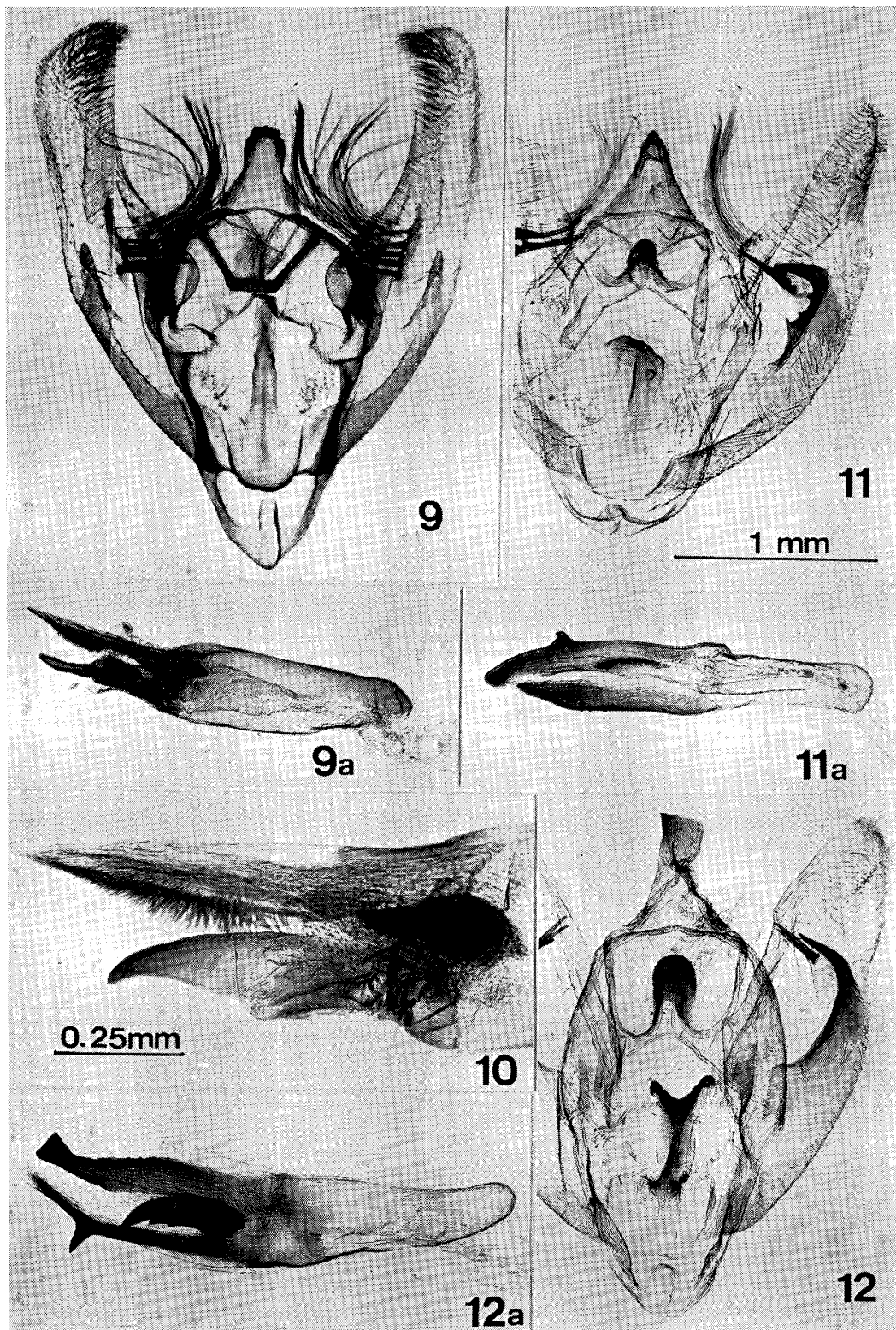
broad; ductus seminalis arising near posterior end of bursa copulatrix, which is weakly sclerotized near colliculum, remainder membranous; signum large, in form of transverse fold.

Holotype. ♂, Tainai, Kurokawa-mura, Niigata Pref., 5. vi. 1978 ex larva (R. SATO). Paratypes. Type locality, 1 ♂, 14. vi. 1978; 1 ♂, 6 ♀, 17. vi. 1978; 7 ♂, 47 ♀, 23. vi. 1979 (R. SATO).

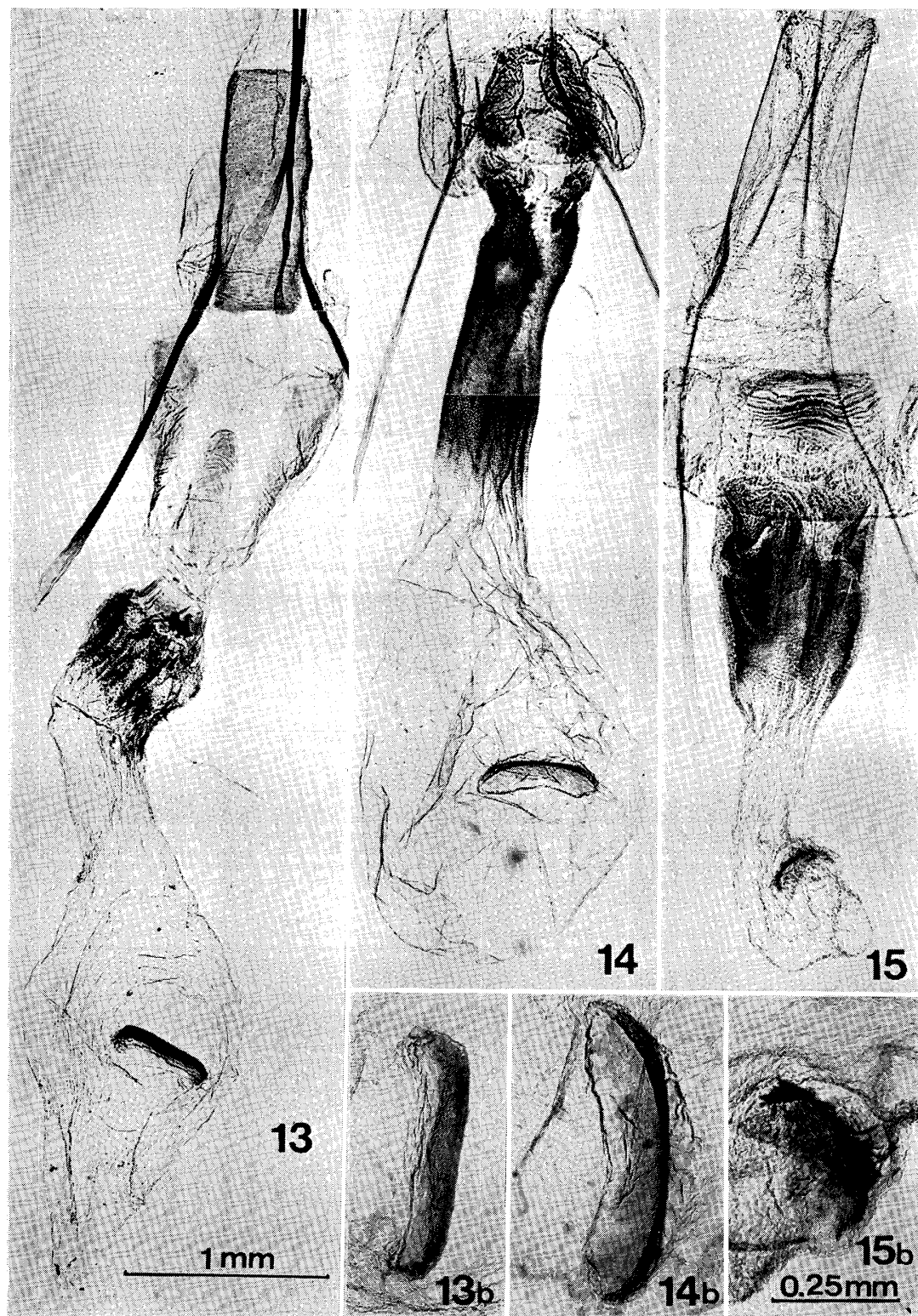
Holotype and five paratypes will be deposited to the collection of National Science Museum, Tokyo. Two paratypes are in Dr. H. INOUE's collection, and others in my cabinet.

Distribution: Japan (Honshu).

Ecological notes. Univoltine; the hibernating in the stage of egg. Host plant



Figs. 9-12. Male genitalia of *Hesperumia* spp. (a) aedeagus. 9. *H. babai* sp. nov. Paratype. Slide RS-835. 10. ditto, apical portion of aedeagus. Slide RS-1094. 11. *H. sulphuraria* PACKARD. Slide RS-913. 12. *H. latipennis* (HULST). Slide RS-915.



Figs. 13–15. Female genitalia of *Hesperumia* spp. (b) signum. 13. *H. babai* sp. nov. Paratype, Slide RS-836. 14. *H. sulphuraria* PACKARD, Slide RS-914. 15. *H. latipennis* (HULST), Slide RS-916.

unknown. A single mature larva was found on a twig of *Hamamelis japonica* (Hamamelidaceae) on 21 May, 1978, and pupated without taking leaves at all. An adult male, holotype, emerged from the larva on 5 June, 1978. Larvae hatched from eggs laid by captured females refused to eat *H. japonica*.

Remarks. *Hesperumia* PACKARD, 1873, is a small genus which includes four North American species. Until RINDGE (1974, Amer. Mus. Novit., (2561): 1-24) placed *Ultralcis* McDUNNOUGH, 1920, in this genus, it had been a monotypic genus containing *H. sulphuraria* PACKARD. The present new species is distinct from any of the Nearctic ones by veins Sc and R₁ being free, and by the simple female antenna, but the male antenna with scaled pectinations arising from apex of each segment and the male and female genitalia show a close affinity to those of *Hesperumia* spp. Therefore, I am inclined to put this species provisionally into *Hesperumia*.

Although this species is more similar to *H. latipennis* (HULST) (Figs. 5, 6) than to *H. sulphuraria* PACKARD (Figs. 7, 8) in wing colour and maculation, the following characters of genitalia clearly indicate a close affinity with the latter; in male, the swelling at the base of costa with a tuft of long hair, and several stout spines at mid-valva; in female, a single transverse folded signum (Figs. 11, 12, 14, 15).

Acknowledgement

I wish to express my hearty thanks to Dr. H. INOUE, Ôtsuma Woman's University, for his invaluable advice and for reading through the manuscript, and to Dr. W. C. MCGUFFIN, Biosystematics Research Institute, Canada, for his kindness in sending me the specimens of *Hesperumia sulphuraria* and *H. latipennis*. My thanks are also due to Messrs. A. SEINO, T. NAITO and N. KATO for their help in my field works. Last but not least, my sincere thanks should be expressed to Dr. K. BABA who kindly aided me in various ways during my field works in Tainai, Kurokawa-mura, Niigata.

摘 要

佐藤力夫：日本産 *Hesperumia* 属の 1 新種

Hesperumia PACKARD は、北米産の 4 種を含む小さな属である。筆者は、馬場金太郎博士の企画された新潟県黒川村胎内の昆虫相調査に参加し、同属の一員と考えられる未知種を得たので新種として記載した。

Hesperumia babai SATO ババエダシヤク (新称)

年 1 化 6 月に発生。卵越冬。食餌植物不明。

本種は広義の *Boarmia* の仲間属するが、北米の *Hesperumia* と若干の差異も認められるので、今後さらに所属や系統関係について、幼生期も含めて検討を加える必要があろう。